

## ABSTRACT

Methods and apparatuses for bit-level permutations using a Benes fabric are described. In one embodiment, the Benes fabric includes an interconnection of multiple 2x2 switches. The 2x2 switches can be in either a pass-through state or a cross-over state. Each switch is coupled to a control circuit or a control register to control the state of the switch. The manner in which the 2x2 switches are interconnected allows a variety of bit permutations to be selected. The bit permutations can be used, for example, for encryption or decryption of digital data.

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